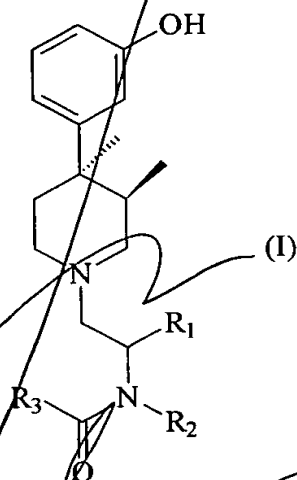


WHAT IS CLAIMED AS NEW AND IS DESIRED TO BE SECURED BY LETTERS  
PATENT OF THE UNITED STATES IS:

1. A compound represented by formula (I):



wherein

R<sub>1</sub> is hydrogen, an alkyl group, an aryl group, or an aralkyl group;

R<sub>2</sub> is hydrogen, an alkyl group, an aryl group, or an alkaryl group; and

R<sub>3</sub> is

n is 0 or an integer from 1 to 4;

y is 0 or an integer from 1 to 5;

z is 0 or an integer from 0 to 8; and

R<sub>5</sub> is an alkyl group, alkenyl group, or aralkyl group,  
or a pharmaceutically acceptable salt thereof.

18. The compound of Claim 17, wherein

R<sub>a</sub> and R<sub>b</sub> are each, independently, hydrogen or a C<sub>1-8</sub> alkyl group, or R<sub>a</sub> and R<sub>b</sub>,  
together, form a cycloalkyl group;

each X is, independently, a C<sub>1-8</sub> alkyl group;

O is a five-membered heteroaryl group or a six-membered aryl or heteroaryl group;

each W is a C<sub>1-8</sub> alkyl group;

n is 0, 1 or 2;

y is 0 an integer from 1 to 3;

z is 0 an integer from 1 to 4; and

R<sub>5</sub> is a C<sub>1-8</sub> alkyl group, a C<sub>3-8</sub> alkenyl group, or an aryl-C<sub>1-4</sub> alkyl group.

3 ~~19~~. The compound of Claim ~~18~~<sup>2</sup>, wherein O is a five-membered heteroaryl group  
containing up to 3 heteroatoms, a six-membered aryl group or a six-membered  
heteroaryl group containing up to three heteroatoms.

4 ~~20~~. The compound of Claim ~~19~~<sup>3</sup>, wherein the heteroatoms are each, independently,  
nitrogen, oxygen or sulfur.

5 ~~21~~. The compound of Claim ~~20~~<sup>4</sup>, wherein

R<sub>a</sub> and R<sub>b</sub> are each, independently, hydrogen or a C<sub>1-4</sub> alkyl group, or R<sub>a</sub> and R<sub>b</sub>,  
together, form a cycloalkyl group;

each X is, independently, a C<sub>1-4</sub> alkyl group;

n is 0, 1 or 2;

y is 0, 1 or 2;

z is 0 an integer from 1 to 4; and

R<sub>5</sub> is a C<sub>1-8</sub> alkyl group, a C<sub>3-8</sub> alkenyl group, or a phenyl-C<sub>1-4</sub> alkyl group.

6 22. The compound of Claim <sup>5</sup>21, wherein

5

O is a six-membered aryl group; and

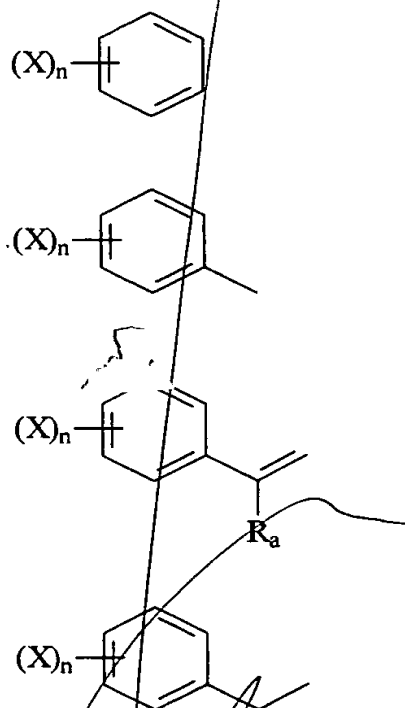
z is an integer from 1 to 4.

23. A method of binding opioid receptors, comprising administering an effective amount of the compound of Claim 1 to a mammalian subject in need thereof.

24. A method of binding opioid receptors, comprising administering an effective amount of the compound of Claim 6 to a mammalian subject in need thereof.

25. A method of binding opioid receptors, comprising administering an effective amount of the compound of Claim 11 to a mammalian subject in need thereof.

7 26. A method of binding opioid receptors, comprising administering an effective amount of the compound of Claim <sup>1</sup>17 to a mammalian subject in need thereof.



each X is, independently, halogen, -OH, -OR, an alkyl group, an aryl group, -NH<sub>2</sub>, -NHR, -N(R)<sub>2</sub>, -CF<sub>3</sub>, -CN or -C(O)NH<sub>2</sub>, -C(O)NHR, or -C(O)N(R)<sub>2</sub>;

each R is, independently, an alkyl group, an aryl group or an alkaryl group, wherein

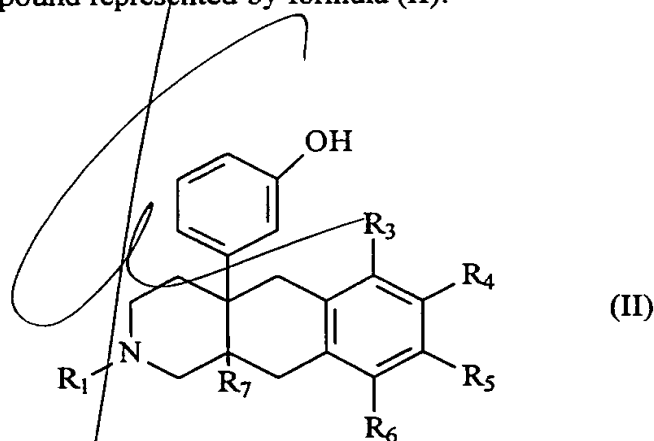
when X is -N(R)<sub>2</sub> the R groups may, together, form a cyclic alkyl group;

n is 0 or an integer from 1 to 5; and

R<sub>a</sub> is hydrogen or an alkyl group,

or a pharmaceutically acceptable salt thereof.

2. The compound of Claim 1, wherein  
 $R_1$  is hydrogen, a  $C_{1-4}$  alkyl group, a phenyl group, or an aralkyl group;  
 $R_2$  is hydrogen or a  $C_{1-4}$  alkyl group; and  
 $n$  is 0, 1, 2, 3 or 4.
3. The compound of Claim 2, wherein  
 $R_1$  is hydrogen or a  $C_{1-4}$  alkyl group; and  
 $n$  is 0, 1, 2, 3 or 4.
4. The compound of Claim 3, wherein  
 $R_1$  is hydrogen or a  $C_{1-3}$  alkyl group;  
 $R_2$  is hydrogen or a methyl group;  
 $n$  is 1, 2, or 3, and at least one X is -OH, -OCH<sub>3</sub> or -F.
5. The compound of Claim 4, wherein at least one X is -OH.
6. A compound represented by formula (II):



- $R_1$  is an alkyl group or aralkyl group; and  
 $R_3, R_4, R_5, R_6$  are each, independently, hydrogen, an alkyl group, -OH, -NH<sub>2</sub>, -NHR,  
 -N(R)<sub>2</sub>, halogen, -OR, -CF<sub>3</sub>, -CN, -NO<sub>2</sub>, or -NHC(O)R, wherein when any of  $R_3, R_4, R_5$ , or  $R_6$   
 is N(R)<sub>2</sub> the R groups may, together, form a cyclic alkyl group;

each R is, independently, an alkyl group, an aryl group, or an alkaryl group; and  
R<sub>7</sub> is hydrogen or an alkyl group,  
or a pharmaceutically acceptable salt thereof.

7. The compound of Claim 6, wherein

R<sub>1</sub> is a C<sub>1-8</sub> alkyl group or an aryl-C<sub>1-4</sub> alkyl group;

at most three of R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub> are each, independently, an alkyl group, -OH, -NH<sub>2</sub>, -NHR, -N(R)<sub>2</sub>, halogen, -OR, -CF<sub>3</sub>, -CN, -NO<sub>2</sub>, or -NHC(O)R; and

R<sub>7</sub> is hydrogen or a C<sub>1-8</sub> alkyl group.

8. The compound of Claim 7, wherein

R<sub>1</sub> is a C<sub>1-8</sub> alkyl group or a phenyl-C<sub>1-4</sub> alkyl group;

at most two of R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, and R<sub>6</sub> are each, independently, an alkyl group, -OH, -NH<sub>2</sub>, -NHR, -N(R)<sub>2</sub>, halogen, -OR, -CF<sub>3</sub>, -CN, -NO<sub>2</sub>, or -NHC(O)R;

R<sub>7</sub> is a C<sub>1-8</sub> alkyl group.

9. The compound of Claim 8, wherein

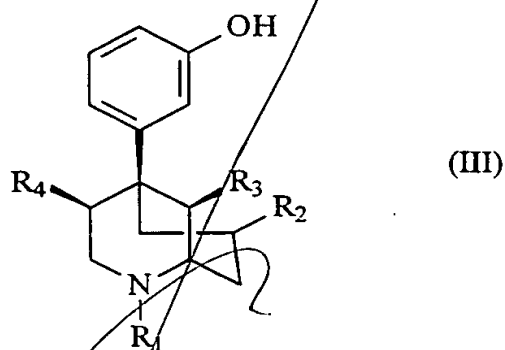
R<sub>1</sub> is a C<sub>1-4</sub> alkyl group or an aryl-C<sub>1-3</sub> alkyl group;

one of R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, or R<sub>6</sub> is an alkyl group, -OH, -NH<sub>2</sub>, -NHR, -N(R)<sub>2</sub>, halogen, -OR, -CF<sub>3</sub>, -CN, -NO<sub>2</sub>, or -NHC(O)R; and

R<sub>7</sub> is a C<sub>1-4</sub> alkyl group.

10. The compound of Claim 9, wherein R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, and R<sub>6</sub> are hydrogen.

11. A compound represented by formula (III):



where

R<sub>1</sub> is an alkyl group or an aralkyl group;

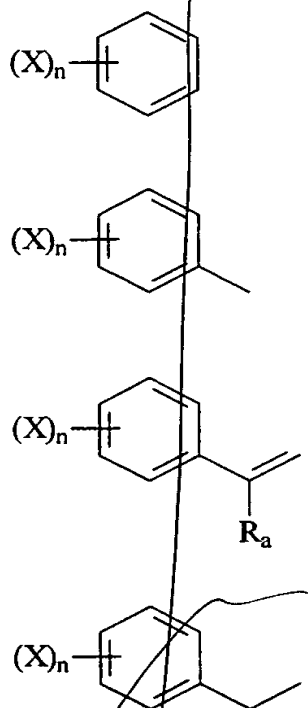
R<sub>2</sub> is hydrogen, an alkyl group, an aralkyl group, =O, -NH<sub>2</sub>, -NHR, -N(R)<sub>2</sub>,

-NHC(O)R, -NRC(O)R, -NHC(O)R<sub>5</sub>, or -NRC(O)R<sub>5</sub>;

R<sub>3</sub> and R<sub>4</sub> may be hydrogen or methyl, with the proviso that when R<sub>3</sub> is methyl then R<sub>4</sub> is hydrogen and when R<sub>3</sub> is hydrogen then R<sub>4</sub> is methyl;

each R is, independently, an alkyl group, an aryl group, or an alkaryl group; and

R<sub>5</sub> is



each X is, independently, halogen, -OH, -OR, an alkyl group, an aryl group, -NH<sub>2</sub>, -NHR, -N(R)<sub>2</sub>, -CF<sub>3</sub>, -CN, -C(O)NH<sub>2</sub>, -C(O)NHR, or -C(O)N(R)<sub>2</sub>;

each R is, independently, an alkyl group, an aryl group, or an alkaryl group;

n is 0 or an integer from 1 to 5; and

$R_a$  is hydrogen or an alkyl group,

or a pharmaceutically acceptable salt thereof.

12. The compound of Claim 11, wherein

$R_1$  is a C<sub>1-8</sub> alkyl group or an aryl-C<sub>1-4</sub> alkyl group;

$R_3$  is methyl; and

$R_4$  is hydrogen.

13. The compound of Claim 12, wherein  $R_1$  is a C<sub>1-8</sub> alkyl group or an phenyl-C<sub>1-4</sub> alkyl group.



14. The compound of Claim 11, wherein

$R_1$  is a  $C_{1-8}$  alkyl group or an aryl- $C_{1-4}$  alkyl group;

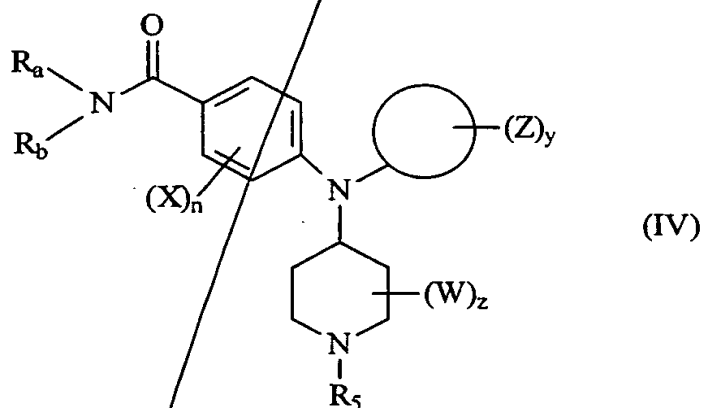
$R_3$  is hydrogen; and

$R_4$  is methyl.

15. The compound of Claim 14, wherein  $R_1$  is a  $C_{1-8}$  alkyl group or an phenyl- $C_{1-4}$  alkyl group.

16. The compound of Claim 11, wherein  $R_2$  is =O.

17. A compound represented by formula (IV):



where

$R_a$  and  $R_b$  are each, independently, hydrogen or an alkyl group, or  $R_a$  and  $R_b$ , together, form a cycloalkyl group;

each X is, independently, an alkyl group;

$\bigcirc$  is a five- or six-membered aryl or heteroaryl group;

each Z is, independently, an alkyl group, -OH, -OR, halogen, -CF<sub>3</sub>, -CN, -NH<sub>2</sub>, -NHR, or -N(R)<sub>2</sub>, wherein when Z is -N(R)<sub>2</sub> the R groups may, together, form a cyclic alkyl group;

each R is, independently, an alkyl group, an aryl group, or an alkaryl group;

each W is an alkyl group;